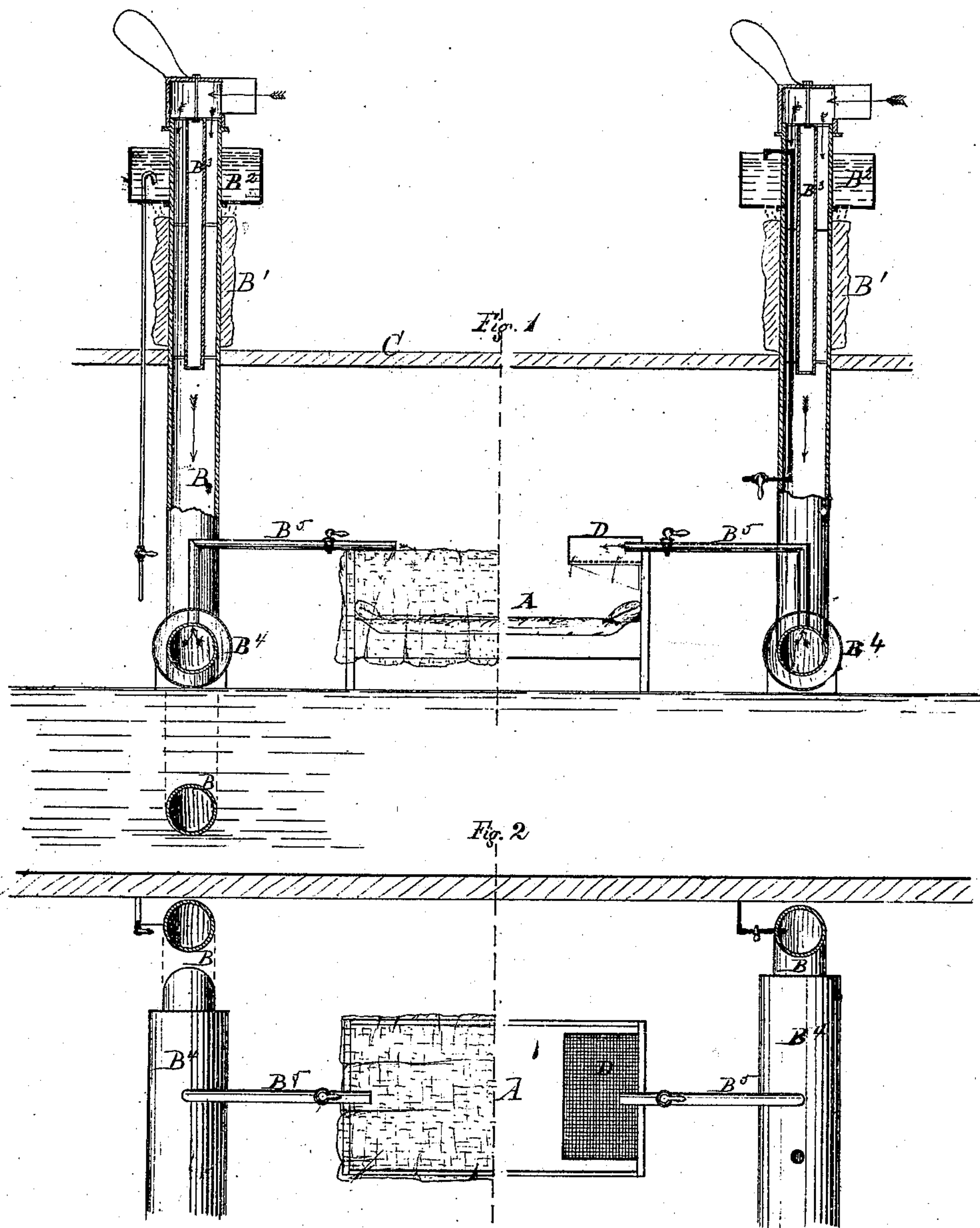


*J. E. Somes, 3. Sheets. Sheet. 1.*

*Air Bed.*

*No. 99722.*

*Patented Feb. 8. 1870.*



*Attest*  
*W. E. H. H. H.*  
*J. E. Somes.*

*Inventor*  
*J. E. Somes.*

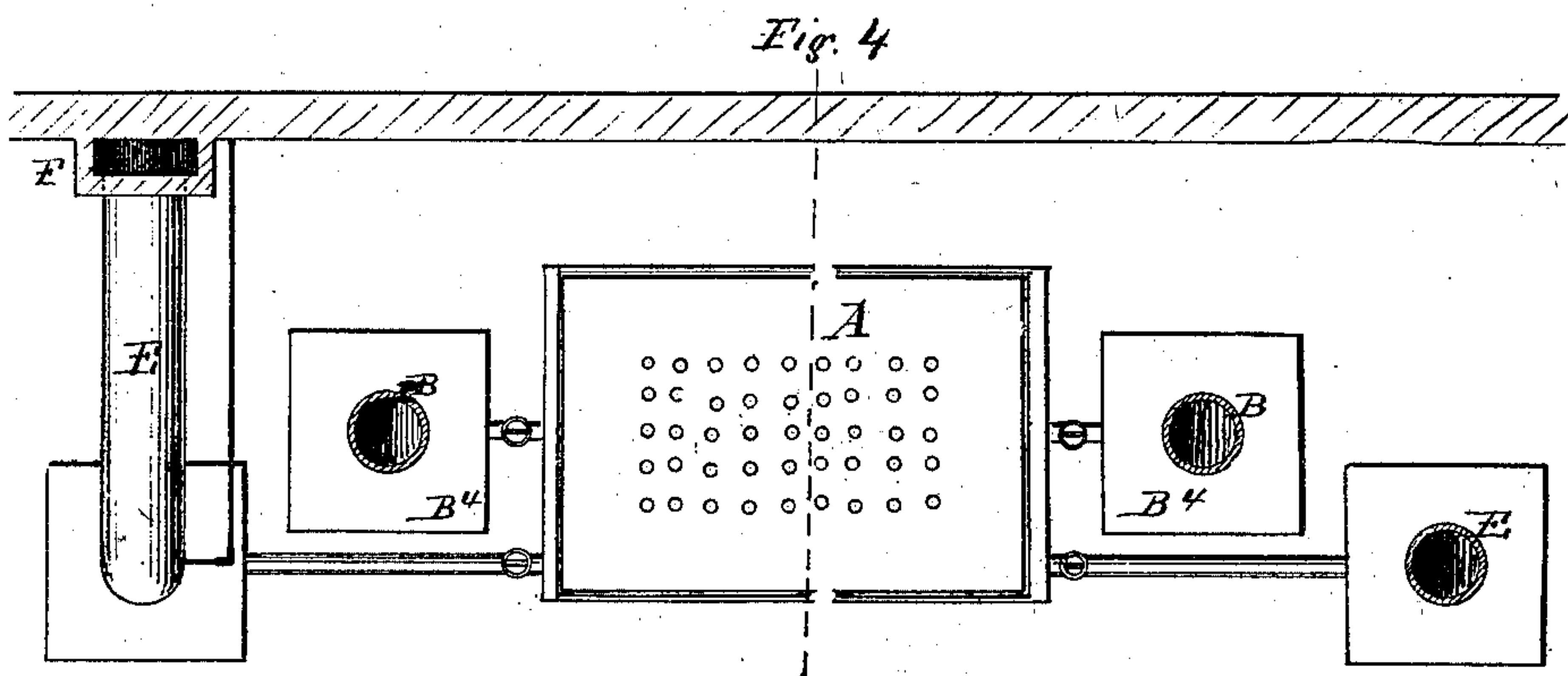
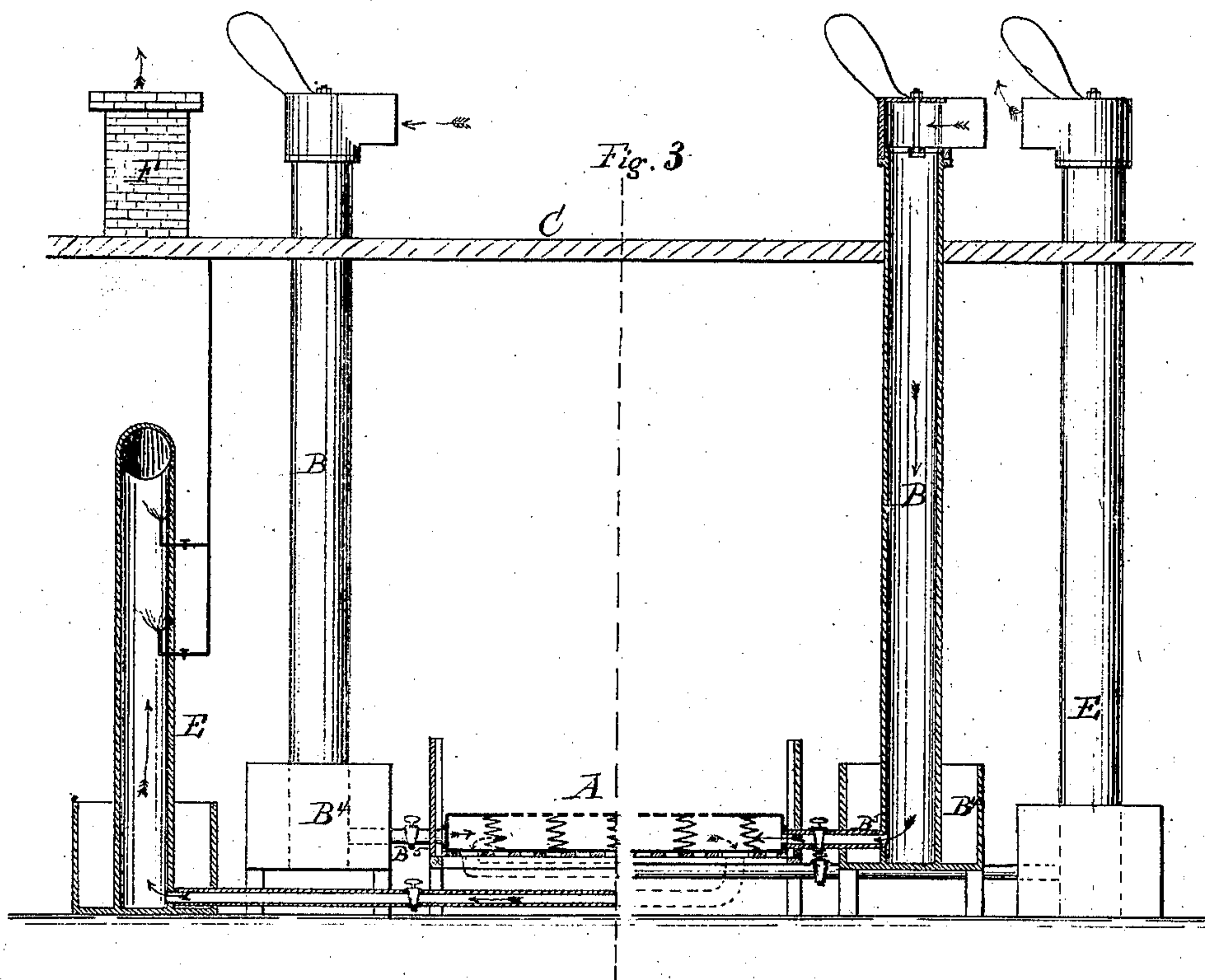
*J. E. Sames,*

*3. Sheets. Sheet. 2.*

*Air Bed.*

*No. 99722.*

*Patented Feb. 8. 1870.*



*Attest*  
*W. H. Keith*  
*J. E. Sames*

*Inventor*  
*J. E. Sames*

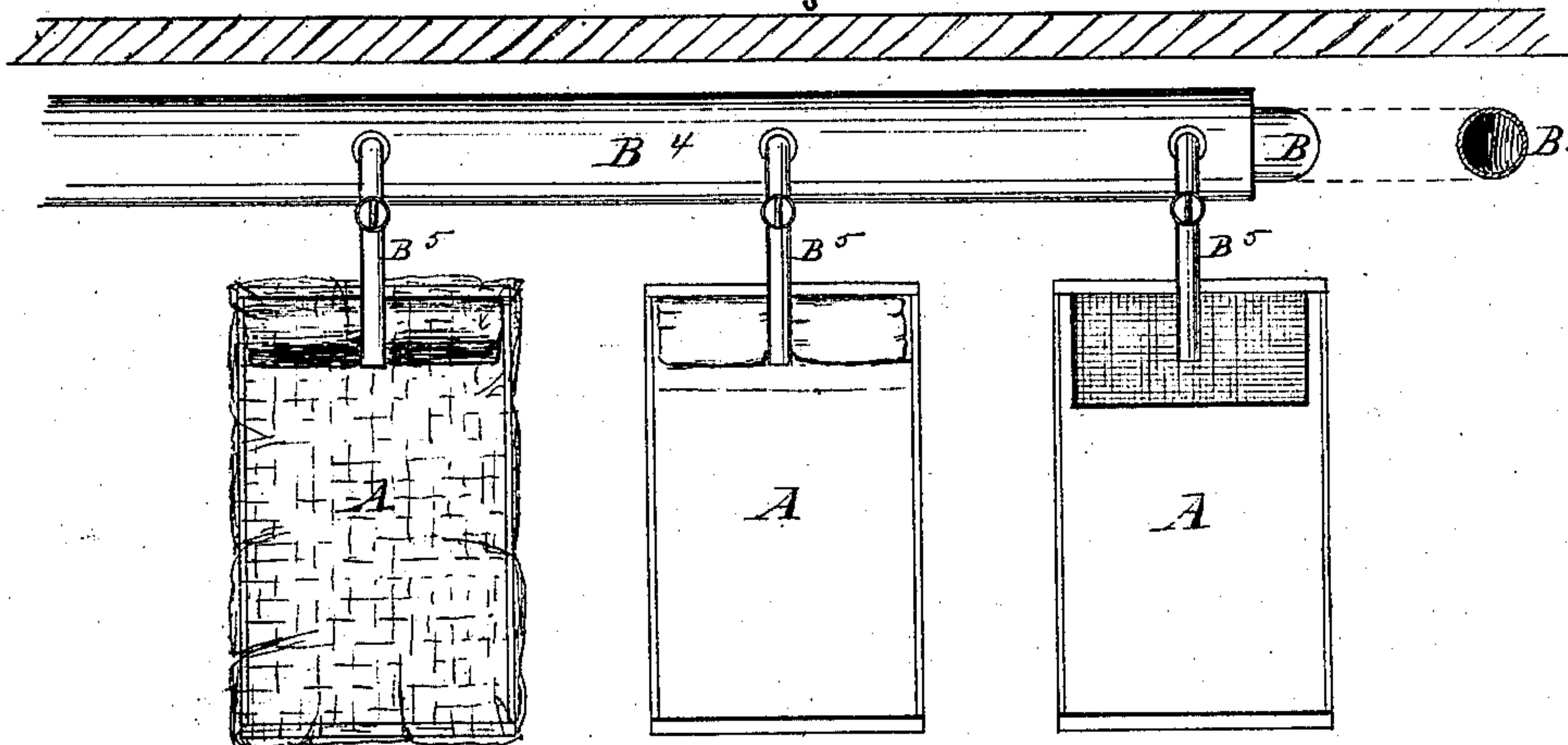
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*Air Bed.*

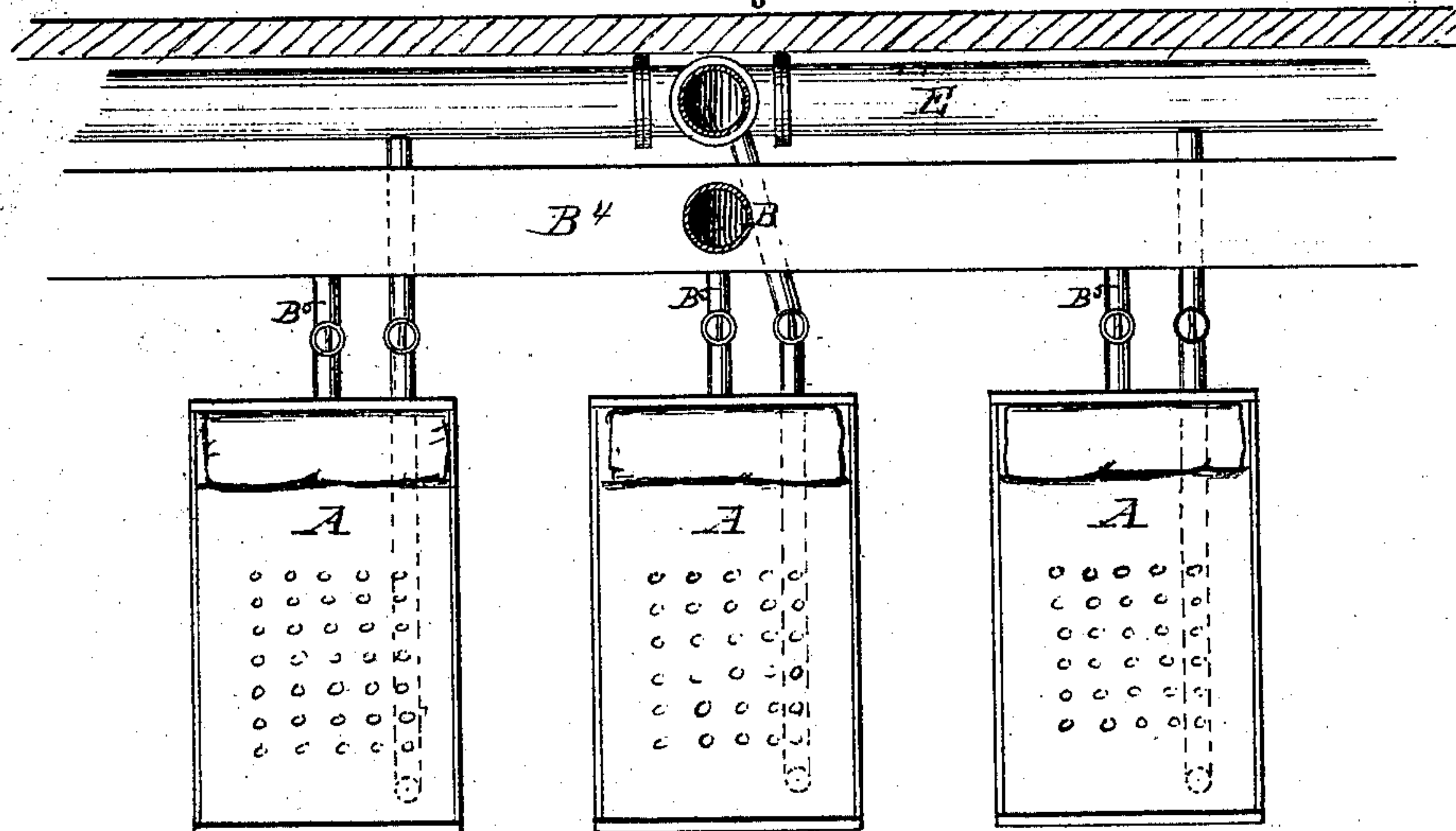
*No. 99722*

*Patented Feb. 8. 1870.*

*Fig. 5*



*Fig. 6*



*Attest*  
*J. E. Schuchert*  
*(H. C. Somes.)*

*Inventor*  
*I. E. Somes*



# United States Patent Office.

DANIEL E. SOMES, OF WASHINGTON, DISTRICT OF COLUMBIA.

*Letters Patent No. 99,722, dated February 8, 1870.*

## IMPROVED DEVICE FOR VENTILATING AND COOLING OR WARMING BEDS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, DANIEL E. SOMES, of Washington, in the county of Washington, and in the District of Columbia, have invented a new and useful Improved Mode of Ventilating and Cooling or Warming Beds; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is an elevation of a bedstead, with my apparatus for supplying cold or warm air to the same, the air-ducts for that purpose being shown partly in section, the left-hand side representing an air-duct carried underground for some distance, while the right-hand half of the figure shows a different arrangement of such duct.

Figure 2 is a plan view of the same.

Figure 3 shows, in the right-hand half, two air-ducts, extending above the roof of a building, and surrounded at their bases by square boxes, and connected by pipes to the mattress of a bed, one at the head of the bed for forcing air into the same, and the other at the foot for drawing off foul air. In the left-hand half, the duct for drawing off foul air is represented as directed into the chimney.

Figure 4 is a plan view of the parts shown in fig. 3.

Figure 5 is a plan view of a series of bedsteads, showing an air-duct, or ventilating-tube, with branch-pipes for supplying air to them.

Figure 6 is a plan view of a series of bedsteads, or beds, showing two air-ducts, one for directing a current of air into the bed, and the other for drawing off air therefrom.

The same letters are used in all the figures to designate like parts.

My invention relates to a mode of ventilating, or cooling beds, and it consists in supplying air, properly tempered, to such beds, by means of air-ducts carried above the roofs of buildings, and also in so arranging a second air-duct in such a manner as to draw off the foul air from the bed or beds, all as will be more fully set forth hereinafter.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the annexed drawings—

A represents a bed, and

B, the air-duct for supplying either warm or cold air to such bed.

In the left-hand half of figs. 1 and 2, I have represented the air-duct as carried underground for some distance, for the purpose of imparting to the air circulating through it, the temperature of the earth, which, as is well known, is nearly uniform throughout all seasons of the year.

In the right-hand half of the same figures, this underground portion of the duct is dispensed with.

Either one of these arrangements may be used, as may be found most convenient or desirable.

The air-duct extends above the roof C of the building for some considerable distance, and has on top a cap or hood, with the necessary vane for turning the mouth of the hood toward the wind, which will thus be caught and circulate through the duct.

To increase the downward current, as well as to cool the air descending, I propose to create, in warm weather, evaporation around a portion of the duct, and to this end, wind or affix around it, above the roof, some fibrous material, as shown at B<sup>1</sup>; upon which water is made to trickle down from a reservoir, B<sup>2</sup>, above it, said reservoir being supplied with water from a hydrant, or by means of a pump. By such constant evaporation, heat is abstracted from the air as it descends the duct, and, consequently, the temperature in the duct considerably reduced.

The duct encloses a cylinder, B<sup>3</sup>, occupying its centre, so that the air descending it is constantly brought in contact with its cold outer wall.

A portion of the duct may be enclosed in a suitable box, B<sup>4</sup>, and in this box ice or other cooling substances may be placed in summer time, when it is desirable to have cool air for the bed or beds, and hot water or steam may be introduced into the same during the cold season.

One branch-pipe, B<sup>5</sup>, provided with a suitable valve or damper, leads from the duct to each bed, discharging the air either directly over the bed, as shown in the left-hand section of figs. 1 and 2, or into a box placed above such bed, and provided with a fine gauze bottom, for the purpose of dividing the current, as shown at D, in the left-hand section of said figures.

It is apparent that one duct may be employed to supply any number of beds with air of any desired temperature.

The air-duct B, in figs. 3 and 4, discharges the air through its branch-pipe B<sup>5</sup>, directly into the mattress at the head of the bed, for the purpose of ventilating the same.

Another duct, E, is here employed, for the purpose of drawing off from the bed any foul air therein, its branch-pipe connecting with the mattress at the foot of the bed.

In the right-hand section of these figs. 3 and 4, I have shown this air-duct E as directed into the chimney F. When it is not convenient to employ a chimney for thus producing a draught, I employ a ventilating-tube or shaft, with one or more gas-jets directed into the same at any convenient point.

In the right-hand section I have shown an air-duct for drawing off foul air, like the duct B, with this dif-



ference, however, that the vane is so attached to its revolving hood or cap as to point its mouth in the direction of the wind; thus a constant tendency to a vacuum at the mouth of the hood will create an upward current in this duct.

Instead of applying the pipes directly to the mattress, as shown, the latter may be enclosed within a casing, with a space or spaces between it and the former on all sides but the top. The air may be admitted to this space, and then directed into the bed, or conducted upward to fall upon it; or the air which is conducted directly into the bed may be drawn out into this space, and then to any desirable place.

In order to prevent the conduction of heat or cold through the walls of the boxes or air-ducts, I surround them, below the evaporating apparatus, with a casing or casings, having spaces between them. These spaces are filled with some good non-conducting material or substance, as tow, wool, cotton, flax, hair, cork, felt, charcoal, air, sawdust, tan-bark, shavings, plaster of Paris, soapstone, soapstone-dust, pipe-clay, or fire-brick. When it is desirable to purify, moisten, dry, perfume, or medicate the air, prior to its being inhaled by the occupant of the bed, I place in the air-ducts or cooling-boxes, charcoal, chloride of lime, quick or air-slaked lime, carbolic acid, ammonia; also sponge, felt, or other fibrous substance filled with water, or water in the form of spray or jets. When water is used in the form of spray or jets, the air-ducts are connected with a grand trunk, or main duct, down which the water is allowed to fall to be conducted away to any desirable point through a trap.

In connecting the lateral branches to the main duct, care should be taken to prevent their receiving any of the falling water. This object may be secured by sloping downward that end of the lateral branch which is joined to the main duct, or the end may be projected into the main duct with an opening in its lower side only which will admit the air and exclude the water.

The mouths of the ducts are covered with wire, or other gauze, or its equivalent, to prevent the entrance of dust and insects.

I use the foregoing substances and materials in patents already granted to me for cooling and ventilating buildings, and I now propose to use them in combination with beds, in the manner as herein described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A bed-sack, or mattress, in combination with an air-duct extending to the outside of the building in which said bed is placed, substantially as and for the purpose set forth.

2. An air-duct surmounted with a revolving hood, in combination with a bed or bedstead, substantially as described and for the purpose set forth.

3. An air-duct with an evaporating apparatus, in combination with a bed, substantially as set forth.

4. An air-duct, with an enclosing-cylinder, B<sup>a</sup>, and an evaporating apparatus, in combination with a bed, substantially as and for the purpose set forth.

5. An air-duct cooled by a packing of ice, or warmed by means of warm water, steam, or the products of combustion, when such duct is extended to the outer air, in combination with a bed, substantially as set forth.

6. A flue, or tube, connected with a chimney, in combination with a bed, substantially as and for the purpose set forth.

7. A flue with gas jets, in combination with a bed, substantially as and for the purpose set forth.

The above specification signed by me this        day  
of        186

D. E. SOMES.

Witnesses:

F. C. SOMES,  
A. M. SMITH.